

and brackish waters. With the field thus circumscribed it is still very indefinite." The book is profusely illustrated with excellent line drawings aimed to simplify the problem of identification. The keys are dichotomous with the exception of the first which comprises seventeen simple statements each of an outstanding character that is intended to guide the user to another key to the group under investigation. The keys make full reference to illustrations of specific points which facilitate their use enormously and eliminate the necessity of many words of description. The appendix is directed mainly to the field of game management. It consists of an annotated list of plants with statements of their use by various categories of birds and by mammals and fish; there are bibliographic references to such uses. The author is to be congratulated on the completion of so useful a book.—H. L. MASON.

A Manual of the Liverworts of West Virginia. By NELLE AMMONS. American Midland Naturalist 23: 3-164, pls. 1-26. 1940. University Press, Notre Dame, Indiana. Cloth \$1.75.

This manual includes 56 genera and 111 species, 23 more than have been reported previously for West Virginia. The Jungermanniales comprise a large proportion of the hepatic flora, only 15 species being recorded for the Marchantiales. No new combinations or species are proposed. Dr. Ammons follows the system recently proposed by Evans (Bot. Rev. 5: 49-96. 1939), an arrangement of groups differing from that found in most current floras.

Many items not usually found in bryological manuals are included. In the preface are brief paragraphs on the topography of West Virginia, the history of the study of liverworts in the state, the collection and care of liverwort specimens and a general discussion of the life history and structure of Hepaticae followed by a table giving the differences between mosses and liverworts. These last two sections serve as an introduction to Hepaticae for those who have had no formal bryological training. Brief descriptions of the orders and suborders of Hepaticae followed by an outline giving the sequences of families and genera as proposed by Evans introduce the taxonomic treatment. The main key is to genera rather than to families. This is probably the reason that Dr. Ammons used the less graphic numerical type of key rather than a simple dichotomous key. In a few instances, characters in the key would be extremely difficult to use if one were not already familiar with the group. "Thallus with pores (some exceedingly small and barely discernible)" as opposed to "thallus without pores," is a character that might well stump the amateur. For each species is given a brief description which stresses vegetative rather than reproductive characters, habitat, distribution according to counties within the state and general

distribution throughout North America. In many cases additional notes are given that will help to distinguish the species from closely related entities. Twenty-six plates of detailed illustrations for all species included in the manual supplement the descriptions. The author is to be congratulated for making all drawings in a given series on the same scale. Four appendices cover species excluded, abbreviations and names of authors, meanings of specific names and a glossary. Although of interest, these appendices are not all essential. A useful bibliography of 193 titles completes the text. The manual gives evidence of much careful and painstaking work and is a welcome addition to the literature on Hepaticae. Since many of the species are widely distributed, the work will be of value to bryologists in other parts of North America.—ANNETTA CARTER, Department of Botany, University of California, Berkeley.

Desert Wild Flowers. By EDMUND C. JAEGER. Stanford University Press. Pp. 1-322, 764 figs. Stanford University Press, Stanford University, California. 1940. \$3.50.

Here is a book written for every nature lover who wishes to learn a good deal more about the plant life found on the Mohave and Colorado Deserts. Fewer and fewer people can resist the temptation to travel out into the arid wastes of the Southwest these days, and this volume is a fine introduction to the plant friends one will make there, whether he is going to Death Valley or the lower Colorado River. It is a scientifically accurate book written for the amateur and it is filled with interest for the widest audience.

Mr. Jaeger combines the varied training of a naturalist with the skill of a keen observer and the accuracy of a scientist. He has been a student of desert natural history for twenty-five years and himself first discovered in California several of the plants of which he tells. Furthermore, he knows how to present his story in a simple, colorful style. Consequently, this book not only describes the plants, but tells us a great deal about the animal life associated with them, as well as many details about habitats, economic uses, and life histories.

In addition to the latest scientific name, each plant has been given a common one chosen with meritorious care. Perhaps it is only the professional taxonomist who will regret the omission of the author of the scientific name. The concise descriptions are valuable aids to making the correct determinations, but they are intended only as supplements to the excellent line drawings that accompany each species. Mr. Jaeger himself was the artist and he travelled thousands of miles to sketch the plants in flower from life. The seven hundred and sixty-four line drawings and photographs serve as the only "key" to the book. One looks at the pictures, which follow the usual systematic sequence, until he matches his unknown plant. Then he verifies his determination by a peru-